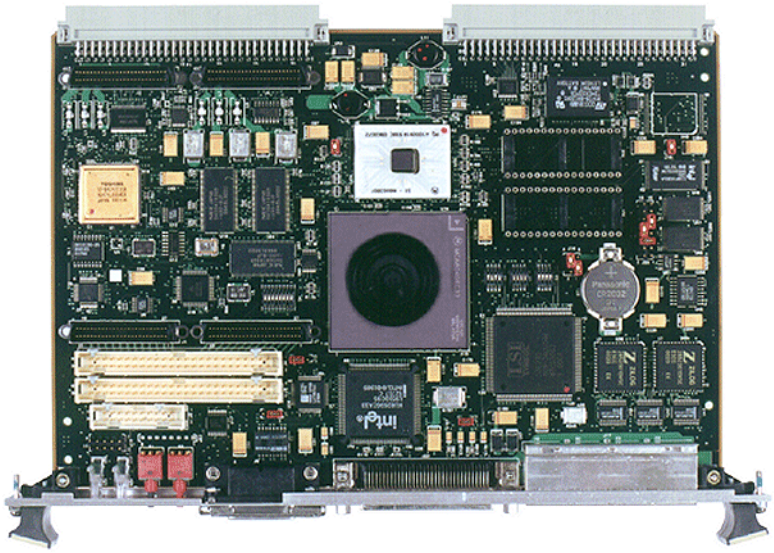
MVME172P2

VME Embedded Controller with 2 IP Slots



- 60 MHz MC68060 or 64 MHz MC68LC060
- 16MB of configurable SDRAM, with ECC option or parity checking
- 128KB SRAM with battery backup
- 2MB of Flash memory
- 8K x 8 NVRAM and time-of-day clock with battery backup
- Four serial communication ports, configured as EIA-232-D DTE
- Two 16- or one 32-bit IndustryPack® ports with one DMA channel per port
- Six 32-bit timers, one watchdog timer
- SCSI and Ethernet interfaces
- Two 32-pin JEDEC DIP sockets for EPROM
- Remote Reset/Abort/Status control functions
- On-board debugger and diagnostic firmware

Dual IndustryPack logic interface for embedded monitoring and control applications

The MVME172P2 allows VME embedded controller users to achieve the price-performance value of RISC architectures while maintaining MC68000 object code compatibility. By combining the MC68060 superscalar performance with a wide range of optional features and the IndustryPack interface, OEMs can select the exact product for their application rather than paying for unwanted features.

The inclusion of the new “Petra” application-specific integrated circuit (ASIC), which replaces functions formerly implemented in the IP2 chip and MC2 chip, improves the performance of the memory subsystem. Memory configuration switches enable the customer to tailor memory size for applications requiring smaller memory configurations.

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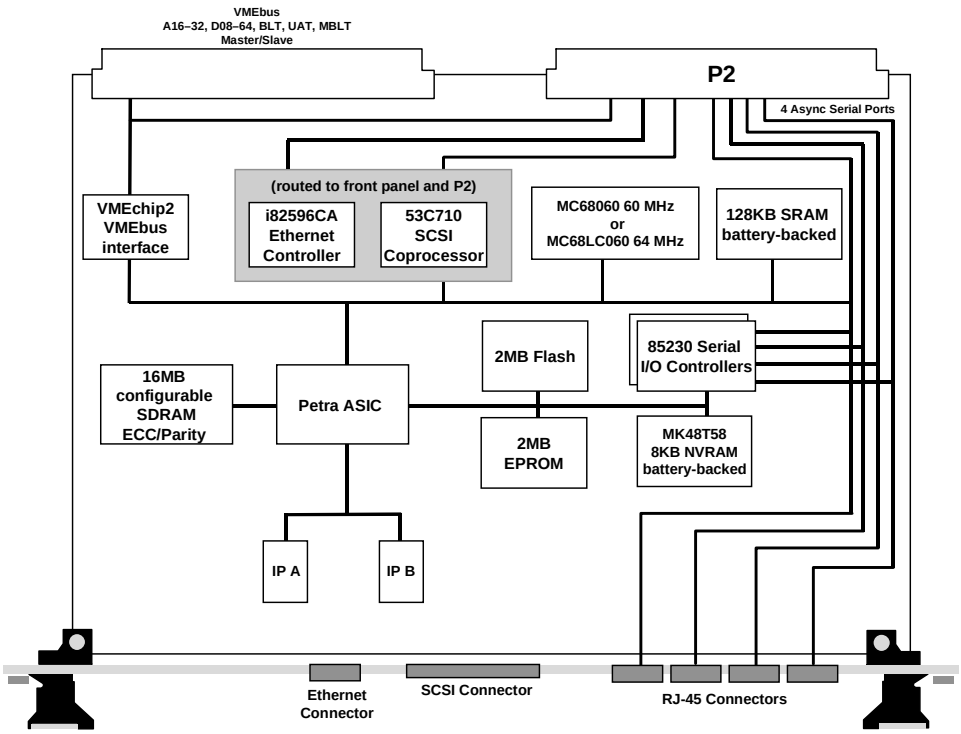

MVME172P2 Details

Microprocessor Options

The MVME172P2 features the superscalar MC68060 microprocessor which achieves superb integer and floating point performance from its RISC hybrid architecture. The object code compatibility of the MC68060 with earlier generations allows a significant performance increase while preserving software investment. For cost-sensitive applications where floating point performance is not required, the optional MC68LC060 can be ordered.

VMEbus Interface

VMEbus interface functionality is provided by the VMEchip2 ASIC designed by Motorola. In addition to controlling the system's VMEbus functions, the VMEchip2 includes a local bus to/from VMEbus DMA controller, VME board support features, as well as global control and status register (GCSR) for interprocessor communications. The MVME172P2 also provides support for the VME D64 specification within the VMEbus interface, further enhancing system performance.

Memory Options

The MVME172P2 provides users with a variety of data storage options such as SDRAM with ECC option or parity checking, EPROM/ROM, Flash, and battery-backed SRAM.

IndustryPack Interface

A key feature of the MVME172P2 is the IndustryPack logic interface. This interface provides a 32-bit data path for the IndustryPack modules to the local MC68060 bus. IndustryPack modules provide a wide variety of connections to "real-world" applications such as I/O, control, interface, analog and digital functions. Up to two single-wide IndustryPack modules can be installed on the MVME172P2 and still occupy only one VME slot. As I/O needs change, a new IndustryPack module can be installed thus preserving the customer's overall investment.

I/O Connections

I/O connections are physically located on the front panel of the board. They include four RJ-45 connectors for the serial ports, an AUI connector for Ethernet, and a 68-pin SCSI interface connector.

Software Support

The MVME172P2 is supported by a wide range of real-time kernels and embedded operating systems.

Integrated Systems, Inc.:	pSOS+™
Microware Systems Corporation:	OS-9®/OS-9000™
Microtec:	VRTX32™
Wind River Systems, Inc.:	VxWorks®

Specifications

Processor

Microprocessor:	MC68060	MC68LC060
Clock Frequency:	60 MHz	64 MHz

Memory

Synchronous Dynamic RAM

Capacity:	16MB
Read Burst Mode:	4-1-1-1
Write Burst Mode:	2-1-1-1
Shared:	VMEbus/local bus

Flash

Capacity:	2MB
Access Cycles:	6 read, 7 write

User-Installed ROM

Capacity/Sockets:	2MB/Two 32-pin DIP

Static RAM

Capacity:	128KB
Read/Write Burst Mode:	5-3-3-3/5-3-3-3
Shared:	VMEbus and local bus
Battery Type:	Lithium
Battery Life (approximate):	406 days continuous backup at 25° C, 81 days at 70° C

VMEbus ANSI/VITA 1-1994 VME64 (IEEE STD 1014)

DTB Master:	A16–A32; D08–D64, BLT, UAT + MBLT
DTB Slave:	A16–A32; D08–D64, BLT, UAT + MBLT
Arbiter:	RR/PRI
Interrupt Handler:	IRQ 1–7
Interrupt Generator:	Any 1 of 7
System Controller:	Yes, jumperable
Location Monitor:	Four, LMA32

IndustryPack Logic Interface

Data Width:	16/32-bit
Interrupts:	Two levels
DMA:	Two channels
Clock Speed:	8 MHz or 25 MHz
Module Types:	Two single-high, one double-high
Transfer Rate, 8 MHz:	8MB/sec 16-bit; 16MB/sec 32-bit
Connectors:	Access via two 50-pin planar connectors

SCSI Bus

Controller:	NCR 53C710
Local Bus DMA:	Yes, with local bus burst
Asynchronous:	5.0MB/s
Synchronous:	10.0MB/s
Connector:	Front panel 68-pin micro D high density

Ethernet

Controller:	82596CA
Local bus DMA:	Yes
Connector:	Front panel DB-15

TOD Clock

TOD Clock Device:	MK48T58; 8KB NVRAM
Replaceable Battery:	Yes

Counters/Timers

Real-Time Timers/ Counters:	Six 32-bit programmable, 1 µsec resolution
Watchdog Timer:	Time-out generates reset

Serial Ports

Controller:	Two 85230
Number of Ports:	Four
Configuration:	EIA-232-D DTE (all 4 ports)
Sync/Async Baud Rate, bps max.:	38.4K
Connectors:	Front panel RJ-45

Power Requirements

(with PROM; without IP modules)

	Typical	Maximum
+5V ± 5%:	1.75 Amps	2.0 Amps
+12V ± 5%:	—	100 mA (max., with off-board LAN transceiver)
–12V ± 5%:	—	100 mA

Hardware Support

Multiprocessing Hardware Support:	Four mailbox interrupts, RMW, shared RAM
Debug/Monitor (included):	MVME172FW, boot, and diagnostics

Board Size

Height:	233.4 mm (9.2 in.)
Depth:	160.0 mm (6.3 in.)
Front Panel Height:	261.8 mm (10.3 in.)
Width:	19.8 mm (0.8 in.)

Demonstrated MTBF

(based on a sample of eight boards in accelerated stress environment)

Mean:	190,509 hours
95% Confidence:	107,681 hours

Environmental

	Operating	Nonoperating
Temperature:	–5° C to +55° C, forced air cooling	–40° C to +85° C
Altitude:	5,000 m	15,000 m
Humidity (NC):	10% to 85%	10% to 85%
Vibration:	2 Gs RMS, 20–2000 Hz random	6 Gs RMS, 20–2000 Hz random

Electromagnetic Compatibility (EMC)

Intended for use in systems meeting the following regulations:

U.S.: FCC Part 15, Subpart B, Class A (non-residential)

Canada: ICES-003, Class A (non-residential)

This product was tested in a representative system to the following standards:

CE Mark per European EMC Directive 89/336/EEC with Amendments; Emissions: EN55022 Class B; Immunity: EN50082-1

Safety

All printed wiring boards (PWBs) are manufactured with a flammability rating of 94V-0 by UL recognized manufacturers.

Ordering Information

Part Number	Description
All modules contain two IndustryPack slots, 2MB Flash and 2MB EPROM.	
MVME172P-642SE	60 MHz MC68060, 16MB SDRAM w/ECC, SCSI and Ethernet
MVME172P-642LSE	64 MHz MC68LC060, 16MB SDRAM w/parity, SCSI and Ethernet
Documentation	
V172PLXA/IH	MVME172P2 Installation and Use Manual
V1X2PLXA/PG	MVME172P2/162P2 Programmer's Guide
V172DIAA/UM1	172Bug Diagnostics User's Manual
68KBUG1/D	68K Debugging Package User's Manual Part 1
68KBUG2/D	68K Debugging Package User's Manual Part 2
Once released, documentation is available for on-line viewing and ordering at http://www.motorola.com/computer/literature.	

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